Methods: Reviewing available literature providing evidence for the new technologies available for treating:

1- Chronic Venous Disease (including superficial varicose veins and deep venous obstructions).
2- Deep Vein thrombosis (DVT).

Results: RCTs showed that ultrasound-guided endovenous thermal or chemical ablation of superficial varicose veins are as effective as surgical ligation and stripping with the additional advantages of being minimally invasive, with less complications and more patient satisfaction, potential treatment in out-patient setup and early return to work. Stenting of chronic deep venous obstruction is safe, effective in improving symptoms and treating venous leg ulcers. Catheter-directed thrombolysis and pharmaco-mechanical thrombolysis are both effective in treating acute DVT and reducing post-thrombotic manifestations.
Conclusion: Current evidence shows that management of venous diseases is now shifting towards minimally invasive interventions with very promising results. Given the lots of research work done in the field nowadays and evolving technologies provided by manufacturers, it will soon be the standard of practice offered for patients with chronic venous disease.

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The relation between silent ischemia and coronary artery disease severity in diabetics

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Purpose: The aim of this work was to examine the relation between the severity of silent ischemic episodes detected by ambulatory ECG recording and the angiographic severity of coronary artery disease (CAD).
Methods: Fifty patients with chronic stable angina pectoris and type 2 diabetes mellitus were enrolled in the study.Among the study group, there were 33 males and 17 females; and their mean age was 61 ± 6.5 years. All patients were submitted to 24-hours ambulatory ECG recording and coronary angiography with estimation of Gensini score. According to the frequency of silent ST-segment depression episodes, patients were classified into two groups.

Group I: 24 patients with ST-segment depression frequency <8.
Group II: 26 patients with ST-segment depression frequency $\geqslant 8$.

Results: In patients with ST-segment depression frequency $\geqslant 8$, there were significantly higher number of left main coronary artery (LMCA) disease, and significantly higher Gensini score (Table 1). Sensitivity of ST-segment depression frequency $\geqslant 8$ in predicting Gensini score $\geqslant 20$ was 60%, specificity was 56%, positive predictive value was 58%, negative predictive value was 58%, and overall accuracy was 58% (Kappa $= 0.412, p = 0.014$). Gensini score showed significant positive correlation with ST-segment depression frequency ($r = 0.391, p = 0.005$), with maximum ST-segment depression ($r = 0.346, p = 0.014$), and with total ST-segment depression duration ($r = 0.495, p = 0.0003$).
Conclusion: Patients with type 2 diabetes mellitus who had more frequent silent myocardial ischemia by ambulatory ECG recording were found to have angiographically more extensive CAD as assessed by Gensini score. Gensini score was found to be significantly correlated to the frequency of silent ST-depression, maximum ST-depression, and total ST-depression duration.

See Table 1.

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The trace elements in congenital cyanotic heart disease

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Background: The trace elements are essential micronutrients that have important physiological, metabolic, and homeostatic roles in the human being. Up till now the actually role and effect of the trace elements on myocardial metabolism specifically on congenital cyanotic heart disease is not entirely clear.
Objective: This study aimed to detect the serum level of selected trace elements (zinc, copper and selenium), and evaluate its effect and relation in congenital cyanotic heart disease.
Methodology: This study had enrolled upon 50 children, included 30 patients with congenital cyanotic heart disease and 20 age matched normal healthy children as control group. All groups were subjected to thorough clinical history, examination and specific cardiac investigation as well as detection of serum levels of zinc, copper and selenium. All results were statistical analyzed.
Results: The current study revealed that a highly significant decrease in the serum level of both zinc and selenium ($p < 0.00$l and $p < 0.01$), however serum copper level has non significant increase in congenial cyanotic heart disease, were ($p > 0.95$). There was non significant correlation between the mean serum levels of trace elements and the hemodynamic parameters,. Also there were non significant correlations between the age and sex of the studied group and the mean serum levels of these trace elements ($p > 0.05$).
Conclusion: Congenital cyanotic heart disease were associated with a highly significant decrease in the mean serum selenium and zinc levels, when compared with control group and non significant increase the mean serum copper levels. Changes in these trace elements suggested to play an important role in the pathogenesis of myocardial damage in congenital cyanotic heart disease.

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Three-dimensional speckle tracking echocardiography for left atrial and left ventricular function in hypertrophic cardiomyopathy mutation carriers

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Introduction: Hypertrophic cardiomyopathy (HCM) is the most common heritable cardiac disorder and is the leading cause of sudden cardiac death in young individuals and athletes. It is caused by mutations in genes that encode for sarcomere proteins and is characterized by unexplained left ventricular (LV) hypertrophy (LVH). However, the penetrance of LVH is incomplete, highly variable, and age dependent. Recent reports have suggested that HCM mutation carriers without overt LVH frequently have risk factors for sudden cardiac death. Genetic testing provides a certain diagnosis for HCM mutation carriers before development of LVH, though it is hampered by being complex and unfeasible in up to 50% of HCM family members as genetic mutations are only identified in 40–60% of HCM patients. Therefore, an alternative family screening approach for early diagnosis of HCM patients is required. LV diastolic dysfunction as the first marker of disease in preclinical HCM mutation carriers has been previously detected by tissue Doppler imaging (TDI). However, the reported sensitivity and specificity were highly variable. Other imaging tools for the early identification of myocardial systolic dysfunction and myocardial structural alteration such as two–dimensional speckle tracking echocardiography (2DSTE) and integrated backscatter echocardiography, respectively were also investigated albeit with mixed results. Recently, cardiac magnetic resonance (CMR) imaging with its high spatial resolution has displayed subtle myocardial structural changes but also intramyocardial crypts in these mainly asymptomatic patients. However the availability of CMR is limited and the analysis is time consuming. Quantification of LA size and function is a good diagnostic tool for LV diastolic function as well as a predictor of therapy response and major cardiovascular outcomes in various cardiac patients including HCM patients. The assessment of left atrial (LA) longitudinal strain using 2DSTE has recently been shown as a feasible and reproducible marker of LA function. Three–dimensional speckle tracking echocardiography (3DSTE) is an emerging tool building on the strengths of 2DSTE for better quantification of myocardial volumes and mechanics including assessment of dyssynchrony in one fast analysis. In this study, we tested the ability of 3DSTE to distinguish HCM mutation carriers from normal subjects primarily by detecting subtle abnormalities in LA size and longitudinal strain as surrogate markers of early LV dysfunction. Likewise, we evaluated the magnitude and timing of systolic myocardial deformation to detect any abnormalities that can define early systolic dysfunction in these subjects.
Methods and results: A total of 80 subjects with normal LV ejection fraction (EF) were divided into 3 groups: HCM mutation carriers ($\boldsymbol{n}$ = 23), manifest HCM patients ($\boldsymbol{n}$ = 28), and normal controls ($\boldsymbol{n}$ = 29). They prospectively underwent 3DSTE for left atrial (LA) and LV strain analysis. HCM mutation carriers showed significantly higher LA minimum volume (ml/m^2) (17 ± 6 vs. 14 ± 4, respectively, $\boldsymbol{P} = 0.03$) and a significantly lower peak atrial longitudinal strain (PALS) (%), (27 ± 5 vs. 31 ± 7, respectively, $\boldsymbol{P} = 0.02$) when compared to controls. However, no differences were found in global or regional LV systolic myocardial deformation between carriers and normal controls. Manifest HCM patients, compared to carriers showed significantly higher LA minimum (27 ± 10 vs. 17 ± 6, respectively, $P < 0.001$) and maximum volume (42 ± 14 vs. 32 ± 8, respectively, $\boldsymbol{P} = 0.007$) as well as lower LA EF (%) (35 ± 8 vs. 47 ± 9, respectively, $P < 0.001$) and PALS (17 ± 5 vs. 27 ± 5, respectively, $P < 0.001$). Comparing LV strain, HCM patients showed reduced global longitudinal (-11 ± 4 vs. -16 ± 3, respectively, $\boldsymbol{P} < 0.001$) and area strain (-35 ± 6 vs. -40 ± 5, respectively, $\boldsymbol{P} = 0.005$). In addition, there was higher mechanical dyssynchrony (SDI) in the long-axis motion (13.6 ± 10 vs. 8.3 ± 4, respectively, $\boldsymbol{P} = 0.007$).
Conclusion: HCM mutation carriers could be distinguished from healthy subjects using 3DSTE through detection of LA dysfunction that might indicate subtle LV dysfunction. No differences were found in LV systolic myocardial deformation between both groups. The exact clinical value of 3DSTE in family screening for HCM needs to be further evaluated.

Table 1
Shows comparison between two groups in angiographic severity.

	ST-depression Frequency <8 ($n = 24$)	ST-depression Frequency $\geqslant 8$ ($n = 26$)	p
LMCA disease	2 (8.3%)	8 (30.8%)	0.048
Gensini score	21.3 ± 10.75	35.4 ± 17.3	0.001

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Assessment of left atrial function by volumetric indices and tissue Doppler imaging in ischaemic and idiopathic dilated cardiomyopathy

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Background: Left atrial (LA) contractility plays an important role in maintenance of cardiac output in patients with left ventricular systolic dysfunction. Although left atrial contractile dysfunction has been reported in dilated cardiomyopathy of ischemic and non-ischemic etiology, the mechanism of LA dysfunction and the pathophysiologic determinants of left atrial size and function have not been adequately investigated in these patients.
Aim of the work: The aim of this study was to evaluate LA size and contractile function in patients with dilated cardiomyopathy of ischemic and idiopathic etiology and to explore the mechanism and determinants of LA dilation and contractile dysfunction in these patients.
Methods: 35 patients with ischemic dilated cardiomyopathy, 15 patients with idiopathic dilated cardiomyopathy and 30 control subjects were studied with transthoracic conventional echocardiography, tissue Doppler imaging (TDI) and coronary angiography (CA). Left ventricular (LV) size, systolic and diastolic functions as well as mitral regurgitation (MR) were evaluated. Left atrial volume at mitral valve opening (Vmax), onset of atrial systole, determined by onset of the P wave of the electrocardiogram (Vp) and mitral valve closure (Vmin) was determined with two-dimensional echocardiography. The left atrial contractile function was assessed by means of active emptying fraction (ACTEF = $\{Vp - Vmin\}/Vp\%$) and TDI for assessment of late diastolic velocity of the mitral annulus and left atrial free wall.
Results: Left atrial Vmax was greater while ACTEF and left atrial wall velocity were lower in cardiomyopathy patients compared with the control subjects (79 ± 32 vs. 59 ± 18; $\boldsymbol{P} < 0.05$, 27.6 ± 13 vs. 42 ± 15; $\boldsymbol{P} < 0.05$ and 10.2 ± 4.7 vs. 16.2 ± 5.4; $\boldsymbol{P} < 0.05$, respectively). Vmax , ACTEF and left atrial wall velocity were similarly affected in both types of cardiomyopathy, ischaemic and idiopathic, under the same loading conditions (74 ± 24 vs. 91 ± 46; $\boldsymbol{P} > 0.05$, 29 ± 12 vs. 27 ± 13; $\boldsymbol{P} > 0.05$ and 10 ± 5 vs. 11 ± 4; $\boldsymbol{P} > 0.05$, respectively). The determinants of ACTEF were left atrial volume, left ventricular ejection fraction (EF), E/e' and MR severity.
Conclusion: Left atrial enlargement and contractile dysfunction are common in patients of dilated cardiomyopathy regardless of its aetiology, with the same degree of contractile dysfunction in both ischemic and idiopathic cardiomyopathies under similar loading conditions. This dysfunction is related to worse LV systolic and diastolic function,